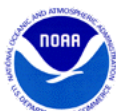


Solar activity was at low levels during the period. Numerous low-level C-class activity was recorded from a variety of regions, the largest a C9/1n at 24/1132 UTC from Region 1778 (S16, L=129, class/area Hsx/110 on 22 June). The largest region on the disk, Region 1775 (S26, L=223, class/area Dkc/410 on 18 June) was responsible for a few low-level C-class flares. Numerous filament eruptions were recorded during the period with possibly three observed to have Earth-directed CME components. The first Earth-directed eruption occurred during 24/1104 - 1204 UTC when a 15 degree long filament, centered near S14W26, erupted. The second Earth-directed eruption occurred during 28/0129 - 0250 UTC associated with a C4/Sf parallel-ribbon flare at 28/0159 UTC from Region 1777 (S15, L=162, class/area Cso/200 on 22 June). ENLIL model analysis suggested a possible weak impact from the resultant CME late on 30 June to early on 01 July. The third Earth-directed CME occurred during 29/0921 - 2342 UTC when a 16 degree long filament, centered near S17W22, erupted. ENLIL model analysis suggested a possible glancing blow from the resultant CME mid to late on 04 July.

A greater than 10 MeV proton event at geosynchronous orbit was observed during the period. In response to an M2 flare observed on 21 June, protons became enhanced at approximately 21/1600 UTC. At 23/2010 UTC, flux levels exceeded the 10 pfu threshold, reached a maximum of 14 pfu at 24/0520 UTC and ended at 24/0850 UTC.

The greater than 2 MeV electron flux at geosynchronous orbit was at high levels from 24 - 28 June, reaching a maximum flux of 17,678 at 27/1640 UTC. Electron flux levels decayed to moderate levels on 29 - 30 June.

Geomagnetic field activity was at quiet to severe storm levels. The period began with quiet to active levels from 24 June to early on 25 June due to waning effects from a coronal hole high speed stream (CH HSS). During this period, solar wind speeds averaged about 550 km/s with total field (Bt) measurements in the 4 to 6 nT range and the Bz component mostly negative to -6 nT. Through midday on 27 June, wind speeds gradually decreased to about 375 km/s, Bt relaxed to about 2-3 nT while Bz was mostly neutral. The geomagnetic field responded with quiet to isolated unsettled levels. At 27/1353 UTC, wind speeds increased sharply from about 380 km/s to 460 km/s for a short period and then gradually declined to about 350 km/s through early on 29 June. Bt increased to 8 nT while the Bz component ranged from -5 to -7 nT. This discontinuity at the ACE satellite was possibly due to effects from the 24 June CME. A 44 nT sudden impulse was recorded at the Hartland magnetometer at 27/1440 UTC. The geomagnetic field responded with quiet to active conditions which persisted through early on 28 June. This was followed by a short interval of quiet levels through midday on 28 June. At about 28/0800 UTC, the Bz component began a slow, negative dive reaching a maximum of -12 nT at 27/1905 UTC. It remained between -10 nT to -12 nT through about 29/1100 UTC. Bt reached a maximum of 13 nT during this time frame. Through the remainder of the period, Bz generally indicated fluctuations of +/- 5 nT. By about 29/0400 UTC, solar wind began a gradual increase from 350 km/s to end the period near 500 km/s. From midday on 28 June through 29 June, the geomagnetic field responded with unsettled to severe storm conditions. Indications are that this



activity was a result of the 28 June slow-moving transient coupled with a corotating interaction region in advance of a recurrent, positive CH HSS. Additional indications of a transition from a transient feature to the CH HSS was a change in the Phi orientation from negative (toward) to positive (away) late on 28 June coupled with increases in temperature and density. By 30 June, the geomagnetic field had relaxed to quiet to unsettled conditions. Finally, a 24 nT shock passage was observed at the Hartland magnetometer at 30/1125 UTC, likely an indication of the arrival of the expected CME that erupted on 28 June.

## **Space Weather Outlook**

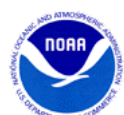
### **01 July - 27 July 2013**

Solar activity is expected to be at predominately low levels with a slight chance for M-class activity through the outlook period.

No proton events are expected at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit is expected to be at high to very high levels from 01 - 06 July, at normal to moderate levels from 07 - 19 July and high to very levels from 20 - 27 July.

Geomagnetic field activity is expected to be unsettled to active levels due to combined effects from a positive CH HSS and effects from the 29 June CME. Predominately quiet conditions are expected from 06 - 16 July. Unsettled to active conditions are expected from 17 - 21 July as a recurrent, negative CH HSS rotated into a geoeffective position. Mostly quiet conditions are expected from 22 - 27 July.



### ***Daily Solar Data***

Date	Radio Flux 10.7cm	Sun spot No.	Sunspot Area (10 <sup>-6</sup> hemi.)	X-ray Background Flux	Flares							
					X-ray			Optical				
					C	M	X	S	1	2	3	4
24 June	121	82	740	B4.7	4	0	0	6	1	0	0	0
25 June	109	91	400	B3.8	1	0	0	6	0	0	0	0
26 June	107	77	320	B3.4	2	0	0	1	0	0	0	0
27 June	100	71	340	B2.6	2	0	0	3	0	0	0	0
28 June	101	83	230	B2.0	3	0	0	4	0	0	0	0
29 June	100	67	230	B1.9	1	0	0	4	0	0	0	0
30 June	103	85	280	B3.4	5	0	0	12	0	0	0	0

### ***Daily Particle Data***

Date	Proton Fluence (protons/cm <sup>2</sup> -day -sr)			Electron Fluence (electrons/cm <sup>2</sup> -day -sr)		
	>1 MeV	>10 MeV	>100 MeV	>0.6 MeV	>2MeV	>4 MeV
24 June	2.3e+07	5.6e+05	2.3e+03		1.8e+08	
25 June	2.8e+06	7.8e+04	2.6e+03		5.9e+08	
26 June	1.3e+06	3.3e+04	2.4e+03		8.2e+08	
27 June	1.9e+06	1.9e+04	2.5e+03		6.2e+08	
28 June	8.3e+05	1.4e+04	2.2e+03		1.8e+07	
29 June	3.2e+06	1.4e+04	2.5e+03		1.1e+07	
30 June	3.6e+05	1.1e+04	2.6e+03		3.1e+07	

### ***Daily Geomagnetic Data***

Date	Middle Latitude Fredericksburg		High Latitude College		Estimated Planetary	
	A	K-indices	A	K-indices	A	K-indices
24 June	14	3-3-2-3-3-3-3-3	30	3-3-3-4-5-6-4-3	15	3-3-2-3-3-3-4-3
25 June	9	3-3-2-2-2-1-2-2	11	3-3-4-2-1-2-2-2	8	3-3-2-2-1-2-2-2
26 June	2	0-0-0-1-1-2-1-1	1	1-1-0-0-0-1-0-0	4	1-1-1-1-1-1-1-1
27 June	8	1-0-0-2-3-2-3-3	3	1-1-0-0-1-1-2-2	8	1-1-1-1-3-2-3-3
28 June	20	4-4-2-2-3-3-3-5	47	4-4-2-5-6-6-6-4	22	4-4-2-2-3-4-4-5
29 June	40	6-6-5-5-3-3-3-3	73	3-6-7-8-5-4-3-3	51	6-7-5-6-4-3-4-4
30 June	11	3-2-2-3-3-2-2-3	11	3-1-2-3-4-2-2-2	11	3-3-2-2-2-2-3-2



### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
24 Jun 1316	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	23/0230
24 Jun 1855	SUMMARY: Proton Event 10MeV Integral Flux $\geq$ 10pfu	23/2014 - 26/0850
24 Jun 2042	WARNING: Geomagnetic K = 4	24/2043 - 25/0700
24 Jun 2047	ALERT: Geomagnetic K = 4	24/2047
25 Jun 0509	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	23/0230
25 Jun 0655	EXTENDED WARNING: Geomagnetic K = 4	24/2043 - 25/1200
25 Jun 1248	WATCH: Geomagnetic Storm Category G1 predicted	
25 Jun 2202	WATCH: Geomagnetic Storm Category G1 predicted	
26 Jun 0500	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	23/0230
27 Jun 0506	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	23/0230
27 Jun 1412	WARNING: Geomagnetic Sudden Impulse expected	27/1425 - 1455
27 Jun 1459	SUMMARY: Geomagnetic Sudden Impulse	27/1440
28 Jun 0010	WARNING: Geomagnetic K = 4	28/0015 - 1300
28 Jun 0056	ALERT: Geomagnetic K = 4	28/0054
28 Jun 1151	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 1800
28 Jun 1332	CONTINUED ALERT: Electron 2MeV Integral Flux $\geq$ 1000pfu	23/0230
28 Jun 1628	WARNING: Geomagnetic K = 5	28/1630 - 2200
28 Jun 1754	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 29/0300
28 Jun 2307	WARNING: Geomagnetic K = 5	28/2306 - 29/0700
28 Jun 2307	WATCH: Geomagnetic Storm Category G1 predicted	
29 Jun 0005	ALERT: Geomagnetic K = 5	28/2359
29 Jun 0223	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 29/1300
29 Jun 0233	WARNING: Geomagnetic K = 6	29/0233 - 0700
29 Jun 0237	ALERT: Geomagnetic K = 6	29/0235
29 Jun 0353	ALERT: Geomagnetic K = 6	29/0351

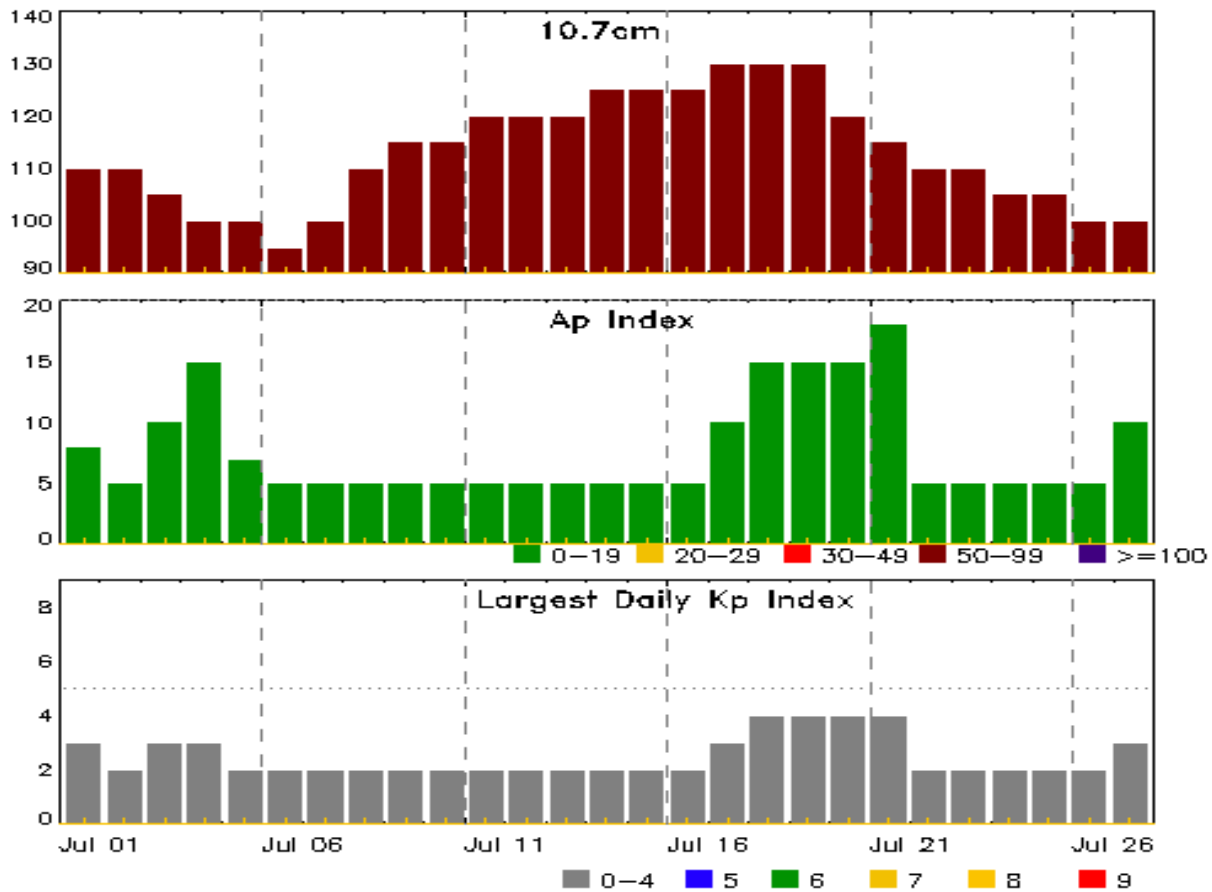


### *Alerts and Warnings Issued*

<b>Date &amp; Time of Issue UTC</b>	<b>Type of Alert or Warning</b>	<b>Date &amp; Time of Event UTC</b>
29 Jun 0515	WARNING: Geomagnetic K $\geq$ 7	29/0515 - 1000
29 Jun 0602	ALERT: Geomagnetic K = 7	29/0559
29 Jun 0656	EXTENDED WARNING: Geomagnetic K = 6	29/0233 - 1000
29 Jun 0656	EXTENDED WARNING: Geomagnetic K = 5	28/2306 - 29/1300
29 Jun 1109	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 29/1900
29 Jun 1109	EXTENDED WARNING: Geomagnetic K = 5	28/2306 - 29/1600
29 Jun 1109	WARNING: Geomagnetic K = 6	29/1110 - 1600
29 Jun 1123	ALERT: Geomagnetic K = 6	29/1123
29 Jun 1608	WATCH: Geomagnetic Storm Category G1 predicted	
29 Jun 1855	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 30/0300
30 Jun 0049	EXTENDED WARNING: Geomagnetic K = 4	28/0015 - 01/0700
30 Jun 1053	WARNING: Geomagnetic Sudden Impulse expected	30/1100 - 1200
30 Jun 1139	SUMMARY: Geomagnetic Sudden Impulse	30/1125
30 Jun 1610	CANCELLATION: Geomagnetic Storm Category G1 predicted	



## Twenty-seven Day Outlook



Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index	Date	Radio Flux 10.7cm	Planetary A Index	Largest Kp Index
01 Jul	110	8	3	15 Jul	125	5	2
02	110	5	2	16	125	5	2
03	105	10	3	17	130	10	3
04	100	15	3	18	130	15	4
05	100	7	2	19	130	15	4
06	95	5	2	20	120	15	4
07	100	5	2	21	115	18	4
08	110	5	2	22	110	5	2
09	115	5	2	23	110	5	2
10	115	5	2	24	105	5	2
11	120	5	2	25	105	5	2
12	120	5	2	26	100	5	2
13	120	5	2	27	100	10	3
14	125	5	2				

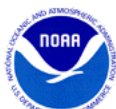
### ***Energetic Events***

Date	Time			X-ray		Optical Information			Peak		Sweep Freq	
	Begin	Max	Half Max	Class	Integ Flux	Imp/ Brtns	Location Lat CMD	Rgn #	Radio Flux		Intensity	
									245	2695	II	IV

**No Events Observed**

### ***Flare List***

Date	Time			X-ray Class	Optical		
	Begin	Max	End		Imp/ Brtns	Location Lat CMD	Rgn #
24 Jun	0441	0442	0447		SF	S13E61	1778
24 Jun	0818	0824	0827	C3.5	SF	S16E56	1778
24 Jun	1127	1132	1136	C9.9	1N	S17E54	1778
24 Jun	1505	1505	1508		SF	S16E53	1778
24 Jun	1610	1617	1623	B9.1	SF	S15E57	1778
24 Jun	1636	1641	1644	C2.0	SF	S29W43	1775
24 Jun	2035	2050	2054	C3.0	SF	S27W45	1775
25 Jun	0503	0504	0508		SF	S28W50	1775
25 Jun	0523	0524	0527		SF	S18W68	1770
25 Jun	1150	1154	1158	B6.6	SF	S28W52	1775
25 Jun	1226	1235	1252		SF	S28W53	1775
25 Jun	1722	1727	1729	B9.4			1774
25 Jun	2122	2129	2135	B6.8	SF	N05W70	1776
25 Jun	2353	2357	0001	C1.0	SF	S25W59	1775
26 Jun	0011	0017	0021	C1.5			1776
26 Jun	0314	0315	0319		SF	S15E34	1778
26 Jun	0353	0411	0431	B9.2			1775
26 Jun	1200	1206	1213	B6.7			1778
26 Jun	1552	1601	1608	C1.3			1774
27 Jun	0809	0814	0820	C1.2	SF	S16E26	1778
27 Jun	0937	0943	0954	B8.5	SF	S16E25	1778
27 Jun	1109	1112	1128	B3.8			
27 Jun	1154	1200	1209	C1.2	SF	S16E23	1778
27 Jun	1947	2029	2132	B4.3			1777
28 Jun	0136	0159	0228	C4.4	SF	S18W19	1777
28 Jun	0217	0217	0226		SF	S16E14	1778
28 Jun	0331	0337	0347	C7.3	SN	S17E12	1778
28 Jun	1650	1705	1723	C1.6	SF	S16E06	1778
29 Jun	0220	0225	0232	B4.0			1781
29 Jun	0300	0304	0308	B3.4			1781
29 Jun	1446	1448	1504		SF	N20W14	1781



## *Flare List*

Date	Time			Optical			
	Begin	Max	End	X-ray Class	Imp/ Brtns	Location Lat CMD	Rgn #
29 Jun	1601	1609	1613	C1.1	SF	N22W08	1781
29 Jun	1713	1714	1727		SF	N20W15	1781
29 Jun	1747	1750	1754	B7.3	SF	N20W13	1781
30 Jun	0250	0255	0258	B6.2			1781
30 Jun	0515	0520	0531	B4.1	SF	S16W20	1778
30 Jun	0539	0541	0543		SF	S16W21	1778
30 Jun	0844	0845	0856		SF	S16W21	1778
30 Jun	0911	0918	0927	C1.5	SF	S16W19	1778
30 Jun	1242	1244	1246		SF	S14W38	1780
30 Jun	1320	1321	1329		SF	S16W23	1778
30 Jun	1512	1517	1520	C2.7	SF	S12W41	1780
30 Jun	1617	1633	1643	C1.3	SF	S12W41	1780
30 Jun	1644	1647	1650	C2.0			1780
30 Jun	1722	1723	1728		SF	S12W42	1780
30 Jun	1804	1810	1816	B8.2	SF	S12W43	1780
30 Jun	2050	2055	2109	C1.3	SF	S15W26	1778
30 Jun	2112	2117	2121		SF	S15W27	1778





## Region Summary

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
<i>Region 1769</i>															
13 Jun	S23E61	261	10	2	Bxo	2	B	1							
14 Jun	S22E49	261	20	7	Cro	3	B				2				
15 Jun	S22E35	260	20	6	Cro	2	B								
16 Jun	S23E24	258	10	1	Hsx	2	A	1			1				
17 Jun	S23E11	259	plage								1				
18 Jun	S23W03	260	plage					1			1				
19 Jun	S22W17	261	plage												
20 Jun	S22W31	262	plage												
21 Jun	S22W45	262	plage												
22 Jun	S22W59	263	plage												
23 Jun	S22W73	264	plage												
24 Jun	S22W87	265	plage												
								3	0	0	5	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 260

<b>Region 1770</b>															
13 Jun	S13E67	254	30	1	Hsx	1	A								
14 Jun	S13E53	257	40	2	Hsx	1	A								
15 Jun	S14E41	255	60	2	Hsx	1	A								
16 Jun	S13E27	255	50	2	Hsx	1	A								
17 Jun	S14E16	253	80	2	Hsx	1	A								
18 Jun	S15E02	254	80	2	Hsx	1	A								
19 Jun	S15W12	256	80	2	Hsx	1	A								
20 Jun	S14W23	254	40	1	Hsx	1	A								
21 Jun	S14W36	252	70	1	Hsx	2	A								
22 Jun	S14W50	253	30	1	Hsx	1	A								
23 Jun	S15W63	254	20	1	Hsx	2	A								
24 Jun	S15W77	255	plage												
								0	0	0	0	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 254



### *Region Summary - continued*

Date	Location	Sunspot Characteristics						Flares							
	Lat CMD	Helio	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
		Lon						C	M	X	S	1	2	3	4
Region 1771															
14 Jun	S12E64	246	20	1	Hrx	1	A								
15 Jun	S11E51	245	10	1	Axx	1	A								
16 Jun	S15E42	241	plage												
17 Jun	S15E28	242	plage												
18 Jun	S15E14	243	plage												
19 Jun	S15W00	244	plage												
20 Jun	S15W14	245	plage												
21 Jun	S15W28	245	plage												
22 Jun	S15W42	246	plage												
23 Jun	S15W56	247	plage												
24 Jun	S15W70	248	plage												
25 Jun	S15W84	248	plage												
								0	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 244

<b>Region 1772</b>															
14 Jun	S20E55	255	10	5	Bxo	5	B								
15 Jun	S20E40	255	30	8	Cri	8	B								
16 Jun	S20E29	255	60	9	Dai	10	B								
17 Jun	S20E15	255	100	9	Dai	17	B	2			1				
18 Jun	S22E02	254	110	7	Dai	13	B								
19 Jun	S22W12	256	120	7	Dai	16	B								
20 Jun	S20W25	256	70	8	Dai	17	B								
21 Jun	S22W38	255	140	9	Dac	23	BG	6			16				
22 Jun	S22W52	255	260	9	Dko	15	BG	1			8				
23 Jun	S22W66	257	140	9	Cao	5	B								
24 Jun	S22W78	255	100	2	Hax	1	A								
25 Jun	S22W89	253	30	1	Hax	1	A								
								9	0	0	25	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 254



### *Region Summary - continued*

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1773															
15 Jun	N04E64	232	30	1	Hrx	1	A								
16 Jun	N04E51	233	40	3	Cao	8	B								
17 Jun	N04E37	232	90	7	Dai	13	B				3				
18 Jun	N03E24	232	90	9	Cai	23	B								
19 Jun	N03E10	234	120	9	Dai	20	B	1			1				
20 Jun	N03W04	235	80	8	Cao	12	B								
21 Jun	N03W21	237	30	4	Hax	6	A								
22 Jun	N04W34	238	50	7	Dso	8	B	1			1				
23 Jun	N04W47	238	10	10	Bxo	5	B								
24 Jun	N04W62	240	plage												
25 Jun	N04W77	241	plage												
								2	0	0	5	0	0	0	0

Died on Disk.

Absolute heliographic longitude: 235

### **Region 1774**

15 Jun	S18E58	238	30	3	Bxo	1	B	1							
16 Jun	S19E46	238	30	3	Cro	2	B								
17 Jun	S18E31	239	80	4	Cso	3	B								
18 Jun	S19E16	240	70	4	Cao	4	B								
19 Jun	S19E02	242	50	2	Hax	3	A								
20 Jun	S16W10	241	30	3	Cso	4	B								
21 Jun	S17W23	239	40	3	Hax	5	A								
22 Jun	S16W37	241	30	4	Cao	7	B								
23 Jun	S17W50	241	20	4	Hrx	4	A								
24 Jun	S17W64	241	40	4	Cao	4	B								
25 Jun	S16W76	240	0	1	Axx	1	A								
26 Jun	S16W90	241	10	1	Axx	1	A	1							
								2	0	0	0	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 242



### *Region Summary - continued*

	Location		Sunspot Characteristics					Flares							
		Helio	Area	Extent	Spot	Spot	Mag	X-ray			Optical				
Date	Lat CMD	Lon	10 <sup>-6</sup> hemi.	(helio)	Class	Count	Class	C	M	X	S	1	2	3	4
Region 1775															
15 Jun	S25E74	223	60	2	Hax	1	A								
16 Jun	S26E59	223	40	5	Dko	4	B				2				
17 Jun	S26E48	222	380	7	Dko	9	BD	2			1				
18 Jun	S26E34	223	410	7	Dkc	18	B	2			4				
19 Jun	S26E20	224	400	7	Dkc	17	BD				1				
20 Jun	S26E06	225	300	5	Dkc	11	BD	3			3				
21 Jun	S26W06	223	270	6	Dkc	9	BD								
22 Jun	S26W19	223	300	10	Dhc	11	BG	1							
23 Jun	S26W32	223	180	6	Dsc	6	BG								
24 Jun	S26W45	222	220	6	Dsc	7	BG	2			2				
25 Jun	S26W57	221	100	4	Dso	7	B	1			4				
26 Jun	S25W70	221	90	3	Cso	2	B								
27 Jun	S25W82	220	110	2	Hsx	1	A								
								11	0	0	17	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 225

### **Region 1776**

18 Jun	N11E05	252	10	1	Axx	1	A				1				
19 Jun	N11W09	253	40	3	Dao	9	B	3			4				
20 Jun	N10W24	254	70	8	Dai	12	B				11				
21 Jun	N11W36	253	170	8	Dao	17	B	1			1				
22 Jun	N11W50	254	220	8	Dai	11	BG								
23 Jun	N11W63	254	160	10	Dso	11	BG				2				
24 Jun	N11W76	253	130	8	Dso	4	B								
25 Jun	N11W88	252	30	4	Cso	3	B				1				
								4	0	0	20	0	0	0	0

Crossed West Limb.

Absolute heliographic longitude: 252



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

#### *Region 1777*

20 Jun	S16E66	165	70	3	Hsx	1	A	1							
21 Jun	S15E56	162	130	3	Cao	3	B		1			1			
22 Jun	S15E42	162	200	3	Cso	3	B								
23 Jun	S15E29	162	170	3	Hsx	1	A								
24 Jun	S15E16	160	170	2	Hsx	2	A								
25 Jun	S16E03	161	150	2	Hsx	1	A								
26 Jun	S14W11	161	130	2	Hsx	3	A								
27 Jun	S16W23	161	130	2	Hsx	1	A								
28 Jun	S16W37	161	150	2	Hsx	1	A	1			1				
29 Jun	S17W50	161	130	2	Hsx	1	A								
30 Jun	S18W63	162	130	2	Hsx	1	A								
								2	1	0	1	1	0	0	0

Still on Disk.

Absolute heliographic longitude: 161

#### *Region 1778*

22 Jun	S16E75	129	110	2	Hsx	1	A								
23 Jun	S16E61	130	100	3	Cao	4	B		1			1			
24 Jun	S16E49	128	80	7	Cao	4	B	2			4	1			
25 Jun	S16E36	128	80	7	Cao	6	B								
26 Jun	S17E22	128	80	5	Cso	7	B				1				
27 Jun	S17E11	126	80	12	Eso	17	BG	2			3				
28 Jun	S17W01	125	50	12	Eao	23	B	2			3				
29 Jun	S17W14	125	50	12	Cso	14	B								
30 Jun	S18W28	127	20	6	Cro	6	B	2			7				
								8	1	0	18	2	0	0	0

Still on Disk.

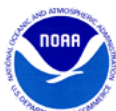
Absolute heliographic longitude: 125

#### *Region 1779*

25 Jun	N17E53	111	10	3	Bxo	2	B								
26 Jun	N15E39	111	10	3	Bxo	2	B								
27 Jun	N15E27	110	10	1	Axx	1	A								
28 Jun	N17E14	110	10	2	Axx	3	A								
29 Jun	N17W00	111	plage												
30 Jun	N17W14	112	plage												
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 111



### *Region Summary - continued*

Date	Location		Sunspot Characteristics					Flares							
	Lat CMD	Helio Lon	Area 10 <sup>-6</sup> hemi.	Extent (helio)	Spot Class	Spot Count	Mag Class	X-ray			Optical				
								C	M	X	S	1	2	3	4

#### *Region 1780*

26 Jun	S09E10	140	0	1	Bxo	2	B								
27 Jun	S08W04	141	10	1	Axx	1	A								
28 Jun	S08W18	143	plage												
29 Jun	S08W32	143	plage												
30 Jun	S13W45	144	20	4	Dri	3	BG	3			5				
								3	0	0	5	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 141

#### *Region 1781*

28 Jun	N22W04	128	10	3	Cro	4	B								
29 Jun	N22W18	129	40	6	Dai	10	BG	1			4				
30 Jun	N19W31	128	90	7	Dai	12	BG								
								1	0	0	4	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 128

#### *Region 1782*

28 Jun	S14E48	75	10	1	Hrx	2	A								
29 Jun	S14E34	77	10	2	Hrx	2	A								
30 Jun	S15E18	80	10	1	Axx	1	A								
								0	0	0	0	0	0	0	0

Still on Disk.

Absolute heliographic longitude: 80

#### *Region 1783*

30 Jun	N04E58	38	10	4	Bxo	2	B								
								0	0	0	0	0	0	0	0

Still on Disk.

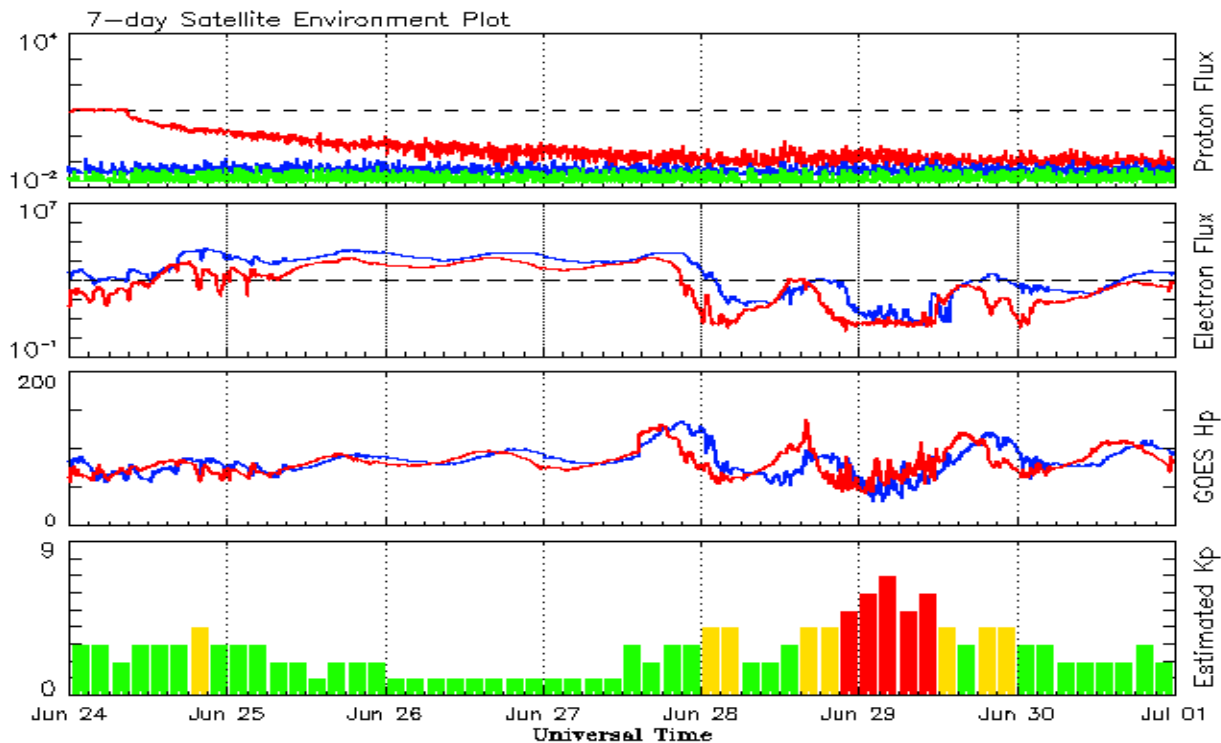
Absolute heliographic longitude: 38

**Recent Solar Indices (preliminary)**  
**Observed monthly mean values**

Month	Sunspot Numbers					Radio Flux		Geomagnetic	
	Observed values		Ratio	Smooth values		Penticton	Smooth	Planetary	Smooth
	SEC	RI	RI/SEC	SEC	RI	10.7 cm	Value	Ap	Value
<b>2011</b>									
July	67.0	43.8	0.66	82.5	57.3	94.2	115.4	9	7.3
August	66.1	50.6	0.77	84.9	59.0	101.7	117.9	8	7.4
September	106.4	78.0	0.73	84.6	59.5	134.5	118.4	13	7.7
October	116.8	88.0	0.75	84.6	59.9	137.2	118.4	7	8.0
November	133.1	96.7	0.73	86.3	61.1	153.1	119.5	3	8.0
December	106.3	73.0	0.69	89.2	63.4	141.2	121.6	3	8.0
<b>2012</b>									
January	91.3	58.3	0.64	92.0	65.5	133.1	124.4	6	8.3
February	50.1	32.9	0.66	94.2	66.9	106.7	126.7	7	8.4
March	77.9	64.3	0.82	94.1	66.8	115.1	126.8	14	8.1
April	84.4	55.2	0.65	91.3	64.6	113.1	125.8	9	8.0
May	99.5	69.0	0.69	87.7	61.7	121.5	123.8	8	8.2
June	88.6	64.5	0.73	83.9	58.9	120.5	121.1	10	8.3
July	99.6	66.5	0.67	82.4	57.8	135.6	119.5	13	8.3
August	85.8	63.0	0.74	83.1	58.2	115.7	119.2	7	8.1
September	84.0	61.4	0.73	83.7	58.1	123.2	118.9	8	7.8
October	73.5	53.3	0.73	85.0	58.6	123.3	119.2	9	7.4
November	89.2	61.8	0.69	87.3	59.7	120.9	120.1	6	7.3
December	60.4	40.8	0.68	88.0		108.4	120.1	3	7.5
<b>2013</b>									
January	99.8	62.9	0.63			127.1		4	
February	60.0	38.0	0.63			104.4		5	
March	81.0	57.9	0.71			111.2		9	
April	112.8	72.4	0.64			125.0		5	
May	125.5	78.7	0.63			131.3		10	
June	80.1					110.2		13	

**Note:** Values are final except for the most recent 6 months which are considered preliminary.  
Cycle 24 started in Dec 2008 with an RI=1.7.





*Weekly Geosynchronous Satellite Environment Summary  
Week Beginning 24 June 2013*

The proton flux plot contains the five-minute averaged integral proton flux (protons/cm<sup>2</sup>-sec -sr) as measured by the SWPC Primary GOES satellite, near West 75, for each of three energy thresholds: greater than 10, 50, and 100 MeV.

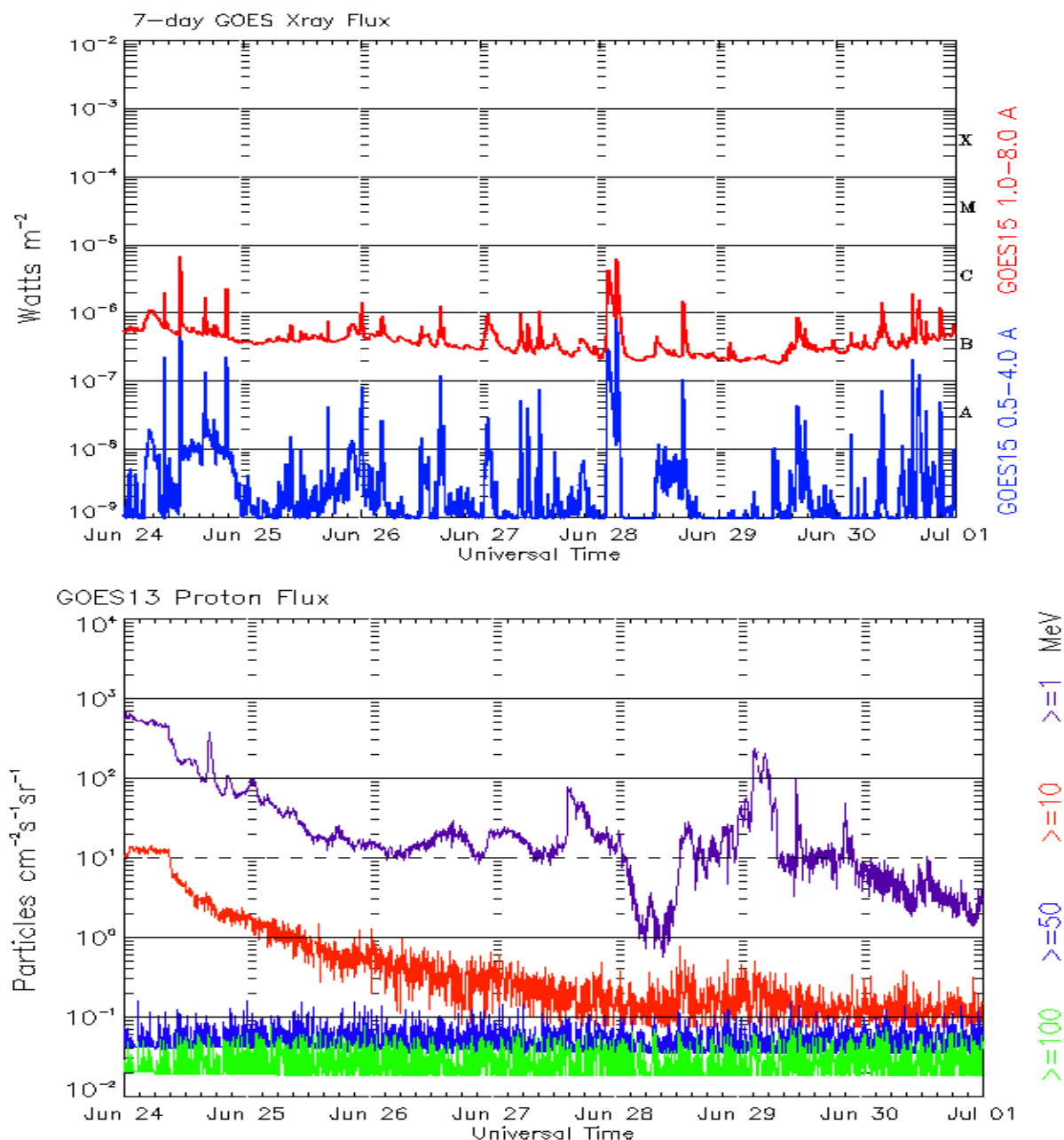
The electron flux plot contains the five-minute averaged integral electron flux (electrons/cm<sup>2</sup>-sec -sr) with energies greater than 2 MeV by the SWPC Primary GOES satellite.

The Hp plot contains the five minute averaged Hp magnetic field component in nanoteslas (nT) as by the SWPC Primary GOES satellite. The Hp component is parallel to the spin axis of the satellite, which is nearly parallel to the Earth's rotation axis.

The Estimated 3-hour Planetary Kp-index is derived at the NOAA Space Weather Prediction Center using data from the following ground-based magnetometers: Boulder, Colorado; Chambon la Foret, France; Fredericksburg, Virginia; Fresno, California; Hartland, UK; Newport, Washington; Sitka, Alaska. These data are made available thanks to the cooperative efforts between SWPC and data providers around the world, which currently includes the U.S. Geological Survey, the British Geological Survey, and the Institut de Physique du Globe de Paris.

The data included here are those now available in real time at the SWPC and are incomplete in that they do not include the full set of parameters and energy ranges known to cause satellite operating anomalies. The proton and electron fluxes and Kp are 'global' parameters that are applicable to a first order approximation over large areas. Hp parallel is subject to more localized phenomena and the measurements generally are applicable to within a few degrees of longitude of the measuring satellite.





*Weekly GOES Satellite X-ray and Proton Plots  
Week Beginning 24 June 2013*

The x-ray plots contains five-minute averages x-ray flux ( $\text{Watt/m}^2$ ) as measure by the SWPC primary GOES X-ray satellite, usually at West 105 longitude, in two wavelength bands, 0.05 - 0.4 and 0.1 - 0.8 nm. The letters A, B, C, M and X refer to x-ray event levels for the 0.1 - 0.8 nm band.

The proton plot contains the five-minute averaged integral flux units (pfu = protons/ $\text{cm}^2$  -sec -sr) as measured by the primary SWPC GOES Proton satellite for each of the energy thresholds:  $>1$ ,  $>10$ ,  $>30$ , and  $>100$  MeV. The P10 event threshold is 10 pfu at greater than 10 MeV.



## ***Preliminary Report and Forecast of Solar Geophysical Data (The Weekly)***

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**Notice:** The 27-day Outlook, Satellite Environment, X-ray and Proton plots have been redesigned.  
Comments and suggestions are welcome [SWPC.Webmaster@noaa.gov](mailto:SWPC.Webmaster@noaa.gov)

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